

**SYMMETRIC MULTI-PROCESSING SYSTEM****ABSTRACT OF THE INVENTION**

5 A method and system for attached processing units accessing a shared memory  
in an SMP system. In one embodiment, a system comprises a shared memory. The  
system further comprises a plurality of processing elements coupled to the shared  
memory. Each of the plurality of processing elements comprises a processing unit, a  
direct memory access controller and a plurality of attached processing units. Each direct  
memory access controller comprises an address translation mechanism thereby enabling  
10 each associated attached processing unit to access the shared memory in a restricted  
manner without an address translation mechanism. Each attached processing unit is  
configured to issue a request to an associated direct memory access controller to access  
the shared memory specifying a range of addresses to be accessed as virtual addresses.  
The associated direct memory access controller is configured to translate the range of  
15 virtual addresses into an associated range of physical addresses.